

Document Camera Magic: Eleven Dozen Ways to Transform Teaching

Take a moment to think about how you might use a document camera in the classroom. Can you think of a dozen ways? Two dozen? Whatever the academic subject or student demographic, there are innumerable ways to creatively use your equipment (whether you are a novice or a pro) to add dynamic elements to your teaching, streamline lesson prep, and reach your students more effectively.



Document cameras provide a powerful enhancement to accepted teaching principles and technique, such as the guidelines offered by the “*Classroom Instruction That Worksⁱ*” method created by Robert Marzano, Debra Pickering, and Jane Pollock. For example, for educators who use Marzano’s principles of “Pause. Prompt. Praise.” will appreciate that the document camera allows for the customization of teaching to the student’s learning pace by pausing the lesson and playing back portions of the presented material to prompt better learning.

Peruse the list below to extend your document camera repertoire in new directions... and, if you have found uses for your document camera that we haven’t listed, let us know!

Get Students Involved in Class

Interactive lessons provide a better learning experience for students. Using a document camera allows teachers to build in seamless opportunities for collaboration, sharing, and other types of student involvement. The visual stimulus provided by the document camera also increases students' brain activity and allows for students to work more readily in cooperative works for overall better learning.

1. Create opportunities for group sharing of individual and group work.
2. Share student artwork to provide an opportunity for students to get a broader understanding of creativity.
3. Create a pre-lecture opportunity for students to volunteer what they know and project it to allow all students to access the information.
4. Give students a new tool to enhance student group presentations to the class.
5. Sharing dioramas created by students without interrupting the flow of the lecture by making students get up and move about.
6. Integrate brainstorming exercises into all lectures and capture student ideas.
7. Do quick polls and surveys to get the pulse of student thought and then display it visually.
8. Offer clear and concise direction to ensure that students understand the expectations of a lesson without multiple repetitions of the information.



Offer Meaningful Assessment and Guidance

Assessment and guidance are important activities that often get streamlined due to time constraints. Strategic use of a document camera provides for more comprehensive and useful guidance of student efforts.

1. Readily present classroom quizzes for more frequent evaluation of student understanding of materials.
2. Regularly share lesson rubrics with students as part of the lesson.
3. Bring open house demonstrations alive for parents and other interested parties.
4. Offer digital flash cards to enhance learning during class breaks or as part of a lesson.

Leverage Audio/Video Recording Capabilities

By recording lessons, either in part or as a whole, teachers can leverage their teaching beyond the normal class time and capture a broader range of material than ever before.

1. Use as a video camera to record interviews with anyone, from the students to primary research sources.
2. Allow students to create documentary footage of discussions and thoughts on the presented material.
3. Record dissection to allow students to experience the material even if they cannot participate themselves.
4. Do readers' theatre exercises – from playbooks, magazines, or student-written plays.
5. Record students' performances (such as plays and recitals) to allow performers to see themselves and improve their performances.
6. Record students reading a book while pointing at the words to let new readers experience reading help from another student.
7. Record class participation.
8. Record teacher best practices.
9. Record demonstrations to allow students to review the materials as many times as needed for complete understanding of the materials.
10. Record your own narrated digital stories.
11. Create lessons ahead of time for use in a learning center.
12. Create and archive lessons and post them online.
13. Use as Web cam to create lesson podcasts for student review “on the go”.
14. Video conference to provide “visiting scholars” to give in geographically remote locations.

Use Image Capture

Image capture capabilities, which include image capture, time-lapse photography, and the slide show function, offer myriad new ways for presenting and experiencing information.

1. Capture classroom/student photos for projects, identification, records and special days.
2. Teach students to create stop-motion animation using time-lapse photography.
3. Save time by taking snapshots to post online rather than using a separate scanner.
4. Use time-lapse photography to document plant growth from seed to green plant or flower blooming and then create a fast-forward sequence to share with students.

Do Visual Comparison and Examination

By comparing and contrasting different items and materials to identify similarities and differences, students benefit from the increased stimulus and brain activity from the visual prompts provided by the camera and gain a deeper understanding of the presented topic. Graphics and visualization is a good way to represent similarities and differences.

1. In Biology class, allow students to compare different species (mammals, amphibians, fish, reptiles, etc.) and discuss their similarities and differences.
2. Share 2-D and 3-D objects simultaneously.
3. Offer a side-by-side comparison of animal and plant cells under a microscope.
4. Compare book images with live materials.
5. Examine the parts of mechanical or technical equipment.
6. Share live animals (mealworms, earthworms, insects, snakes, fish, etc.) which cannot be easily passed around the class.

Illustration/Diagramming/Charting

Charts and graphs have more impact when projected and discussed – a crucial opportunity for students to work at identifying similarities and differences by comparing and classifying items.

1. Demonstrate market trends for an Economics class.
2. Provide visuals of time frames and historical happenings (such as the evolution of dinosaurs). Display a variety of charts/graphs, including bar, pie and fever charts.
3. Present Venn diagram work.

Sharing

Document cameras allow teachers to share visual information naturally and dramatically in the course of a lesson. Be creative about the types of data that might inspire students to greater analysis and thinking, including:

1. Pictures of famous people or historical events.
2. A quote or thought for the day.
3. A visual presentation of the different branches of government.
4. Exploration timelines.
5. A snapshot of other countries, including products, flags, maps, monetary units, geography, history, population, etc.
6. Images for documenting stories/school days.

Elementary Education Basics

Even the youngest students can benefit from the use of a document camera in their classroom. These early learners depend heavily on visual cues for learning, so that the use of a document camera meshes naturally with their preferred learning style.

1. Recognize the student of the day or of the week.
2. Create a digital word wall.
3. Assemble a puzzle as a class.
4. Do calendar work to teach the concept of days, months, and years.
5. Perform a puppet show and let students do the same.
6. Share a favorite picture book with the whole class.
7. When reading aloud, use the camera to show students real examples of items mentioned in the book.
8. Drill students on common “sight words” to help them learn the basics of reading.
9. Place two objects under the camera and ask student to identify similarities and differences (or teachers can use the picture-by-picture function to compare a picture with a live image and have the same practice.)
10. Practice sorting and identification

Make Math Mesmerizing

Math class creates many opportunities for sharing visual information, over and above basic math operations such as addition, subtraction, multiplication, and division.

1. Start a pattern and ask students to predict the next element in it.
2. Let students see geometric shapes, so they can readily identify polygons, quadrilaterals, polyhedrons and more.
3. Share advanced math processes.
4. Illustrate fractions with numbers and pictures.
5. Help students work through word problems.
6. Illustrate place values (i.e. units, tens, hundreds, etc.)
7. Count money/coins together as a class.
8. Show students how to use common math tools, such as rulers, compasses and calculators.

Make Science Scintillating

Students are most likely to get excited about science when it moves from the abstract to the real. Science, in particular, has many opportunities to integrate the use of physical models, real-life demonstrations and the use of movement to create educative opportunities. Bring science to life with creative use of your digital camera.

1. Do more dissection (owl pellets, cow’s eyes, frog, sheep’s brain, cat, etc.) without incurring the cost of providing each student with materials.
2. Rotate/zoom objects/images without touching them.
3. Use the microscope lens to show students the smallest items close up (such as pond water).
4. Allow students to observe habitats – such as a fish tank, ant farm or bird feeder – closely and over time.

5. Provide advanced anatomy lessons to illustrate skeletal structure, bone articulation, etc.
 6. Visualize reflection of lines through a prism.
 7. Investigate fossils.
 8. Demonstrate a litmus test (acid/base).
 9. Freeze action in an experiment at a critical moment for better observation.
 10. Introduce and share foundational physics concepts, such as the periodic table, atoms, molecules, elements, bonding, etc.
 11. Illuminate geology concepts such as rock types or plate tectonics.
- Use as a budget stretcher. When budget permits only a single demonstration of an experiment, record it for playback to other classes on the same day and for future classes.



Translate Reading/Phonics/Language Art/Languages

Reading and language should encompass more than just books. Use the digital camera to introduce students to content in new ways or to encourage reluctant students to improve skills.

1. Share the steps to writing letters or e-mails
2. Let the entire class take turns reading aloud from the pages of a single book projected on the screen. Expand your book choices to anything on your bookshelf!
3. Demonstrate proper letter formation for improved penmanship.
4. Help students get the hang of looking up words in the dictionary by doing it together.
5. When reading aloud, project the correct page on the screen to ensure that everyone is on the correct page.

6. Share a writing prompt or edit it with the help of the class.
7. Open each class with daily sentence work or common grammar and spelling mistakes.
8. Share words for early reading skill or foreign language classes.
9. Demonstrate sign language and finger spelling.
10. Compare literary styles and genres.
11. Demonstrate the requirements for a standard five-paragraph essay.
12. Do interactive character sketches.
13. Demonstrate poetry styles and construction, and then write as a class, by putting the emerging class composition side by side with a classic form.
14. Show students' writing example to provide positive feedback, reinforce effort, or provide recognition.

Make Music and Art Beautiful

The plethora of auditory and visual stimuli provided in music and art classes fit naturally with the addition of audio-visual prompts provided by a document camera.

1. Introduce new music, songs, composers, artists, etc.
2. Teach students to read music.
3. Demonstrate an art color wheel.
4. Demonstrate art techniques and record for repeated viewing.

Non-Traditional Uses Throughout the School

Although document cameras are incredibly useful when demonstrating science experiments, displaying 3-D objects or projecting student work, you should think beyond these everyday applications to enrich offerings and streamline activities in every part of your school.

1. Project instructions and presentations for guidance counseling.
2. Enhance AP class work in all areas.
3. Bring storyboards alive in animation and film classes.
4. Create step-by-step "how-to" lessons in elective classes, such as a recipe in cooking or other world skills (fixing an engine, knitting, etc.)
5. Share books, research articles, and offer story time in the library to get students excited about trying new genres.
6. Introduce the basics of games or exercises in physical education classes.
7. Supplement special education by providing visual prompts to students.
8. Share brochures about upcoming educational opportunities, camps and extracurricular programs.
9. Discuss college admissions and provide guidance with small groups to give students more guidance in selection.
10. Enlarge text for students with vision impairments.
11. Record the speech of students learning English as a second language so they can play back for enhanced learning and later practice.

12. For a home economics class, record a particular sewing technique so that students can see the correct operation of the sewing machine.
13. Record the correct method of holding or demonstrate proper fingering for a musical instrument.

Play Games

Sometimes a bit of fun can transform a lesson.

1. Bring in a mystery object and have students guess its use.
2. Play trivia games to test students on current events.
3. Ask students to race to identify different kinds of leaves, rocks or other science examples. May the best team win!
4. Score classroom games.

Modeling and Demonstration

Seeing and knowing are closely linked for many students, especially the youngest. Make it a regular practice to give students a close look at how things are done.

1. Teach students how to tell time.
2. Show the parts of a flower.
3. Explain electrical wiring, batteries, wires, resistors, capacitors and bells.
4. Help students with summarizing and note-taking skills by first projecting a set of essential points and then modeling note-taking or summarizing the information in front of the camera.
5. Demonstrate how to measure things, from liquids to solids, length, width, and temperature, using both standard and metric measurements. Use the camera to zoom in on the ruler or thermometer to show the smallest units and degrees.
6. Cook/prepare a favorite recipe in cooking class.
7. Show how to sort items to teach organizational skills.

Mastering Classroom Management and Teacher/Parent Communication

By streamlining and improving the nuts and bolts of the day-to-day running of the classroom, you can give yourself more time to teach while still getting the “housekeeping chores” done.

1. Speed up morning roll call by letting students see the list.
2. Share the daily schedule to get everyone on the same page.
3. Provide morning warm-up exercises to make the most of the first moments after the students enter the classroom.
4. Share a main point or essential question at the start of a lesson. Gather questions from students about the subject at hand, past lessons or other topics of interest.
5. Summarize a lesson, chapter or unit with the class or individual students.
6. Give students a look at important announcements.

7. Help classroom aides and paraprofessionals with lessons and training.
8. Correct homework – display the correct answers and allow students to self-correct their work.
9. Post assignments and things to remember so students can take responsibility for assignments and expectations.
10. Capture images of student work to share at parent/teacher conferences.

Leverage the Internet

Increasingly, the Internet has become part of the student experience. Use a document camera to create content that makes the most of this valuable tool.

1. Take pictures of student work, classroom examples and other materials and post online as student study aids.
2. Record lessons and make available online for later review by students who missed class.
3. Train students effectively on the elements of Internet safety.
4. Document daily classroom activities using the recording function for posting to the Web.

Transform School Administration

Although useful in the classroom, the document camera can help even at the highest administrative levels of the school. Bring your document camera to:

1. Board of Education presentations.
2. Budget meetings to show everyone the financial plans for discussion.
3. Faculty meetings and talks to help teachers learn better, too.
4. PTA meetings to aid discussion, or to present agenda and other materials.
5. Volunteer training: Use document camera to train parent volunteers in groups for consistency and shared understanding of rules and protocols.
6. Staff meetings to explain complicated forms.
7. Teacher training and peer coaching to let teachers share their experience and resources. Educators can save time, reduce duplication of effort and focus on improving content by using a document camera to share information and teaching materials with each other.
8. Share images among multiple media devices (a digital camera and document camera, for example) for quick access to compelling teaching examples.

ⁱ <http://www.middleweb.com/MWLresources/marzchat1.html>